

REMARKS

By this amendment, claims 1-9 and 11 are pending in the application. Of these, claims 1 and 9 are being amended. Claims 18-19 are being canceled and claims 12-17 are being withdrawn. The amendments are fully supported by the originally filed specification and original claims and do not add any new matter. For example, the amendments incorporated into claims 1 and 9 were previously presented in claims 18 and 19, respectively. Accordingly, entry of the amendments and reconsideration of the present case is respectfully requested.

Double Patenting Rejection of Claims 1-9, 11, and 18-19

The Examiner rejected claims 1-9, 11 and 18-19 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-35 of U.S. Patent No. 6,777,045. The Examiner furthermore stated that "a timely filed disclaimer in compliance with 37 C.F.R. 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application."

U.S. Patent No. 6,777,045 and the present application are commonly owned. A terminal disclaimer will be filed once the substantive rejections have been addressed. Accordingly, the double patenting rejection of claims 1-9, 11 and 18-19 is obviated.

Rejection Under 35 U.S.C. 103(a) of Claims 1-8, 9 and 11

Chang et al

The Examiner rejected claims 1-2 and 4-8 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0086118 to

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Chang et al. This rejection is traversed.

Claim 1 is patentable over Chang et al. because Chang et al. does not teach or suggest "a structure composed of aluminum oxide and having a roughened surface with a roughness average of from about 150 to about 450 microinches ... [and] a plasma sprayed ceramic coating deposited on the roughened surface of the structure, the plasma sprayed ceramic coating composed of aluminum oxide, wherein the plasma sprayed ceramic coating comprises a textured exposed surface having a roughness with an average skewness across the textured exposed surface that is a negative value and less than about -0.1," as recited in the claim. Chang et al. discloses that "inventive coatings preferably have surface roughness values (Ra) suitable for achieving improved adhesion of polymer byproducts produced during processing of substrates in the plasma reactor ... [such as] 150 to 190 micro-inches" (paragraph 22, third through fourth sentences.) Thus, Chang discloses a surface roughness value of a coating, but does not teach or suggest the claimed average skewness value of the coating, which is a measurement of the asymmetry about a mean line. Accordingly, claim 1 and the claims depending therefrom are patentable over Chang et al.

Chang et al and Levinstein et al

The Examiner rejected claims 3, 9 and 11 under 35 U.S.C. 103(a) as being unpatentable over Chang et al. in view of U.S. Patent No. 4,419,201 to Levinstein et al. This rejection is traversed.

Claim 1, from which claim 3 depends, is patentable over Chang et al. and Levinstein et al. because the references do not teach or suggest "a structure composed of aluminum oxide and having a roughened surface with a roughness average of from about 150 to about 450 microinches [and] a plasma sprayed ceramic coating deposited on the roughened surface of the structure, the plasma sprayed ceramic coating composed of aluminum oxide, wherein the plasma sprayed ceramic coating comprises a textured exposed surface having a roughness with an average skewness

across the textured exposed surface that is a negative value and less than about -0.1," as recited in the claim. Chang et al. has been discussed above, and does not teach or suggest the plasma sprayed ceramic coating having the textured exposed surface having the recited negative skewness. Levinstein et al. does not make up for these deficiencies. Levinstein et al. discloses that "aluminum oxide coatings can be applied to surfaces made, for example, of aluminum, magnesium, titanium, stainless steel, ceramic, plastic or glass," (column 4, lines 43-45) but does not teach or suggest a skewness value for a textured exposed surface of a plasma sprayed coating. Accordingly, claim 1 and the claims depending therefrom are patentable over Chang et al. and Levinstein et al.

Claim 9 similarly recites "a plasma sprayed ceramic coating deposited on the surface of the structure, the plasma sprayed ceramic coating being composed of aluminum oxide and having a porosity of from about 5% to about 10%, wherein the plasma sprayed ceramic coating comprises a textured exposed surface having a roughness with an average skewness across the textured exposed surface that is a negative value and less than about -0.1." Thus, claim 9 and the claims depending therefrom are also patentable over Chang et al. and Levinstein et al. because the references do not teach or suggest the plasma sprayed ceramic coating having the negative average skewness value recited in the claim.

Shih et al and Akiyama et al

The Examiner rejected claims 1-2 and 4-8 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,120,640 to Shih et al. in view of U.S. Patent No. 6,152,071 to Akiyama et al. This rejection is traversed.

Claim 1 is patentable over Shih et al. and Akiyama et al. because the references do not teach or suggest "a plasma sprayed ceramic coating deposited on the roughened surface of the structure, the plasma sprayed ceramic coating composed of aluminum oxide, wherein the plasma sprayed ceramic coating comprises a textured

exposed surface having a roughness with an average skewness across the textured exposed surface that is a negative value and less than about -0.1," as recited in the claim.

Shih et al. discloses a B₄C coating "plasma sprayed over the anodization" (column 9, lines 19-20) where "substantial cavitation of the B₄C occurred adjacent to the anodization" (column 9, lines 23-24.) The teaching of this cavitation does not constitute a teaching towards an average skewness having a negative value. The skewness is defined in the Specification in paragraph 29 according to the following formula:

$$R_{sk} = \frac{1}{R_q^3} \frac{1}{N} \sum_{j=1}^N Z_j^3$$

Where the specification further defines that:

$$R_q = \sqrt{\frac{\sum_{i=1}^N Z_i^2}{N}}$$

is "the root mean square roughness of the surface 422, N is a number of sample points of the surface 422 used to make each skewness measurement, and Z₁, Z₂, ... Z_N are the height deviations from the mean line measured at the sample points" (paragraph 29, page 9.) The specification further qualitatively defines the skewness as a "measure of the asymmetry of the surface profile about the mean line. Shih et al. does not teach or suggest that the cavitation is defined according to the above equations, or that it is a measurement of the asymmetry about a mean line, as in the case of the skewness. In contrast, the cavitation described by Shih et al. could be, for example, a measure of the overall curvature of a coating, or Shih et al. could simply be referring to the presence of pits or cavities formed in the surface. The presence of curvature or pits and cavities

does not, however, signify that the surface has a negative average skewness as defined by the specification. Accordingly, Shih et al. does not teach or suggest a coating having a surface with the recited negative skewness value.

Akiyama et al. does not make up for the deficiencies of Shih et al. Akiyama et al. discloses that "the surface ... of the ceramic cover may be roughened ... for example, by blast-finishing" (column 14, lines 39-47.) However, a surface that is merely roughened is not the same as a surface having an average negative skewness, as recited in the claim. Accordingly, claim 1 and the claims depending therefrom are patentable over Shih et al. and Akiyama et al.

Shih et al, Akiyama et al and Levinstein et al

The Examiner rejected claims 3, 9 and 11 under 35 U.S.C. 103(a) as being unpatentable over Shih et al. in view of Akiyama et al, and further in view of Levinstein et al. This rejection is traversed.

Claim 1, from which claim 3 depends, is patentable over Shih et al, Akiyama et al. and Levinstein et al. because the references do not teach or suggest "a plasma sprayed ceramic coating deposited on the roughened surface of the structure, the plasma sprayed ceramic coating composed of aluminum oxide, wherein the plasma sprayed ceramic coating comprises a textured exposed surface having a roughness with an average skewness across the textured exposed surface that is a negative value and less than about -0.1," as recited in the claim. Shih et al, Akiyama et al. and Levinstein et al. have been discussed above and do not teach or suggest a plasma sprayed ceramic coating having a textured exposed surface with the recited negative skewness value. Accordingly, claim 1 and the claims depending therefrom are patentable over Shih et al, Akiyama et al, and Levinstein et al.

Claim 9 similarly recites "a plasma sprayed ceramic coating deposited on the surface of the structure, the plasma sprayed ceramic coating being composed of

aluminum oxide and having a porosity of from about 5% to about 10%, wherein the plasma sprayed ceramic coating comprises a textured exposed surface having a roughness with an average skewness across the textured exposed surface that is a negative value and less than about -0.1," and thus this claim and the claims depending therefrom are patentable over Shih et al, Akiyama et al. and Levinstein et al. because the references do not teach or suggest the plasma sprayed ceramic coating having the recited negative skewness value.

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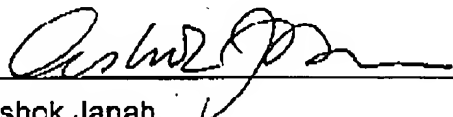
CONCLUSION

The above-discussed amendments are believed to place the present application in condition for allowance. Should the Examiner have any questions regarding the above remarks, the Examiner is requested to telephone Applicant's representative at the number listed below.

Respectfully submitted,
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Date: March, 2005

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